ACT & ACF Draft Programmatic Environmental Impact Statements

SAD Water Supply Conference
Wilmington, NC

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Objectives

- Determine impacts of a water allocation formula to Municipal & Industrial Water Supply
- Use data produced by the Comprehensive Studies
- Quantify the impacts using risk & uncertainty

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Secondary Objective

- To develop a method of determining the expected value of a potential future water shortage, based on insurance theory and using risk and uncertainty

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Method

- For each ‘node’ on the river system:
  - Obtain net water demand estimates for each flow regime and each HEC-5 model year
  - Obtain Independent Hydrologic Alternatives scorecard data on HEC-5 model runs
  - Construct flow frequency distributions

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Method (cont.)

- Multiply demand by its probability of being met (expected supply)
- Calculate expected shortage (demand - expected supply)
- Multiply that expected shortage by price
- Calculate present worth
- Subjectively determine significance of the expected value

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Results

- Insignificant Impacts in the ACF Basin:

Low Flow -$13.5 million

Moderate Flow -$8.0 million

High Flow -$1.0 million

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Results

- Insignificant impacts in the ACT Basin:

Low Flow	**$74,000**
Moderate Flow	**$1.2 million**
High Flow	**$3.6 million**

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Usefulness

- We can quantify shortage risk, given HEC-5 outputs and demand estimates
- Calculate effects of Water Control Plan changes
- Calculate effects of storage reallocations
- Calculate effects of storage changes
- Calculate effects of droughts
- Calculate user willingness to pay to avoid risk
- Provide insight towards willingness to pay for conservation

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Comments Received

- “Underestimates willingness to pay”
  - based on willingness to pay for water, not ‘insurance’
- Does not follow NED Procedures in 1105-2-100
  - Didn’t have to: No structural measures being considered, only operational changes

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